Remarks

I. Introduction

This is in response to the Office Action dated April 11, 2006. This Office Action objected to claim 10 due to various informalities. The Office Action rejected claims 1, 2, 5, 7-8, 11, 13, 19, 22, 25, 29-30 and 38 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,891,866 to Robinson ("Robinson"). The Office Action rejected claims 6 and 26 under 35 U.S.C. §103(a) as being obvious over Robinson. The Office Action objected to claims 3-4, 9-10, 12, 20-21, 23-24, 27, 31-32 and 39 because those claims are dependent upon rejected base claims. The Office Action indicated that claims 3-4, 9-10, 12, 20-21, 23-24, 27, 31-32 and 39 would be allowable if rewritten in independent format. Applicants appreciate the recognition of allowable subject matter.

II. Informalities Objection – Claim 10

Applicants have amended claim 10 to replace the term "extinction ratio" with "optical midpoint" as was suggested by the Office Action. Accordingly, Applicants respectfully request the withdrawal of the informalities objection to claim 10.

III. Rejection - 35 U.S.C. §102(e)

Claims 1, 2, 5, 7-8, 11, 13, 19, 22, 25, 29-30 and 38 were rejected under 35 U.S.C. § 102(e) as being anticipated by Robinson. In order for a claim to be anticipated under 35 U.S.C. § 102, each and every limitation of the claim must be found either expressly or inherently in a single prior art reference. PIN/NIP, Inc. v. Platte Chem. Co., 304 F.3d 1235, 1243 (Fed. Cir. 2002). Applicants have amended claim 1 to more particularly point out and distinctly claim that which the inventors consider the invention. In the present case, Robinson does not show each and every limitation of claims 1, 2, 5, 7-8, 11, 13, 19, 22, 25, 29-30 and 38. Therefore, Applicants request the withdrawal of the rejection under 35 U.S.C. § 102(e).

The Robinson reference teaches a method for determining a condition of a laser system by determining a change in laser current from an initial value. The transmitted power is measured by generating a first control signal that sets a magnitude of a bias current that is supplied to a laser. Then, a second control signal is generated that sets a modulation current supplied to the laser. A difference between the high and low transmitted powers is then detected. This difference represents an optical modulation amplitude of the bias and modulation currents.

The present application teaches a method and apparatus using a semiconductor laser for generating an optical signal having a substantially constant, predetermined optical midpoint power level and a predetermined extinction ratio.

The Office Action rejects claim 1 stating, in part, that the following element of claim 1 is taught by Robinson:

> [T]he optical midpoint controller, in response to the photodetector current, capable of adjusting a forward bias current of the semiconductor laser (taught by Fig. 1, Ibias output from reference numeral 16) to generate the optical signal having a substantially predetermined optical midpoint power level (taught by fig. 1 reference numeral 40, predetermined via comparison to reference value).

Applicants have amended the last element of claim 1 to claim:

> an optical midpoint controller couplable to the photodetector and couplable to the semiconductor laser, the optical midpoint controller, in response to the photodetector current, ~~capable of~~ adjusting a forward bias current of the semiconductor laser, so that the semiconductor laser generates the optical signal with a power level approximate to a predetermined optical midpoint power level, <u>said predetermined optical midpoint power level determined by calculating an arithmetic mean of a plurality of optical power levels.</u> (emphasis added)

Accordingly, claim 1 now expressly claims that the optical midpoint power level is calculated as an arithmetic mean of a plurality of optical power levels. Similar elements are present in independent claims 22 and 38, as those claims were originally filed (claim 38 corresponds directly to original claim 34). Specifically, claim 22 claims, in part:

> (d) determining a measured optical midpoint power level as an arithmetic mean of the detected first optical power level and the detected second optical power level;

and claim 38 claims, in part:

> the forward bias current controller capable of determining a measured optical midpoint power level as an arithmetic mean of the first photodetector current indicator and the second photodetector current indicator;

Accordingly, claim 1 (as amended), claim 22 and claim 38 each claim determining an optical midpoint power level by calculating an arithmetic mean of a plurality of optical power levels/current indicators.

The Robinson reference does not teach calculating an arithmetic mean of such a plurality of optical levels to determine an optical midpoint power level. The Office Action states, in its rejection of claim 5, that this element is taught at column 3, line 34 to column 4, line 20 and references the equation Iavg = Ibias + Imod/2. However, the cited passage and the cited equation do not calculate an arithmetic mean. Instead, this passage of Robinson teaches that "the average drive current applied to the laser diode is Ibias + (Imod/2)." While this equation is referenced as the "average" drive current applied to the laser diode, this is not the same as calculating an optical midpoint power level as the mean of a plurality of optical power levels. The equation for Iavg = Ibias + (Imod/2) as taught by Robinson is not an arithmetic mean of Ibias and Imod. If, for example, Ibias = 10 and Imod = 6, then an illustrative mean of those two values would be (Ibias + Imod)/2 = (10+6)/2 = 8. However, as taught by Robinson, for the same values of Ibias and Imod, Iavg = Ibias + (Imod/2) = 10 + (6/2) = 13. Thus, an arithmetic mean as claimed in claims 1, 22 and 38 is clearly different from the equation taught by Robinson.

Accordingly, for the forgoing reasons, Robinson does not teach the element of determining an optical midpoint power level by calculating an arithmetic mean of a plurality of optical power levels/current indicators, as is claimed in independent claims 1 (as amended), claim 22 and claim 38. Thus, Robinson does not teach all elements of these claims and, as a result, claims 1, 22 and 38 are allowable. It follows that claims 11-13 and 19-21 (dependent upon claim 1); claims 23-32 (dependent upon claim 22); and claim 39 (dependent upon claim 38) are allowable at least for the reason that they are dependent upon an allowable base claim.

Claim 19 claims additional allowable subject matter. Specifically, claim 19 claims, in part:

> an extinction ratio controller couplable to the photodetector and coupled to the modulator, the extinction ratio controller, in response to the photodetector current, capable of adjusting the modulation current provided by the modulator to the semiconductor laser to generate the optical signal having substantially a predetermined extinction ratio.

The Office Action asserts that Robinson column 7, line 20 – column 8, line 10 and column 7, lines 8-14 and 64-67 teach this element. More particularly, the Office Action states that column 7, line 20 – column 8, line 10 of Robinson teaches that an "extinction ratio (is) measured and recorded" and that "the Imod and Ibias can be adjusted to a desired power settings (sic) for extinction ratio or otherwise" and that column 7, lines 8-14 and 64-67 teach that the "power (may be) adjusted to match predetermined value (sic) stored in memory."

Applicants disagree that this is what is taught by the cited passages of Robinson. Specifically, column 7, line 20 – column 8, line 10 of Robinson describes the steps of a method. In accordance with this method, currents Ibias and Imod are applied to a laser diode. Then, a controller reads a high value of a signal IMON in response to the constant currents Ibias and Imod. Next, Ibias alone is applied to the laser diode and the controller reads a low value of the IMON signal. Then, half the current Imod is applied to the laser diode to generate an average transmitted power and the controller reads an average value of the IMON signal. Then, the values of the high, low, average IMON signals are correlated to transmitted power levels which are, for example, retrieved from a table. This passage of Robinson then teaches that an extinction ratio is determined as a ration of power P1 to power P0 and, at the next step, the difference between transmitted powers P1 and P0 are determined. The controller then stores the extinction ratio and other values in a table in memory. Then, the cited passage finally teaches that:

> controller 43 instructs controller 16 to change the current Ibias and/or current Imod and the steps of the method repeat until the transmitted powers for a range of currents Ibias and Imod have been determined. Thereafter, in operation, the host or controller 43 can instruct controller 16 to use values of currents Ibias and Imod that produce the desired transmit powers.

These teachings of Robinson are clearly different than the element of claim 19 cited above. In particular, this passage of Robinson only teaches calculating an extinction ratio and storing that ratio, which is known in the art. This passage of Robinson does not teach adjusting modulation current provided to the laser to generate an optical signal having a predetermined extinction ratio, as is claimed in claim 19.

Accordingly, for the foregoing reasons, Robinson does not teach all elements of claim 19 and, therefore, claim 19 is allowable for this additional reason.

IV. Updated Correspondence Address

Applicants note that the April 11, 2006 Office Action was mailed to Customer Number 34756 at the following address:

> Gamburd Law Group
> 566 West Adams
> Suite 350
> Chicago, IL 60661

However, a Power of Attorney and Change of Correspondence Address letter and Statement Under 37 CFR 3.73(b), copies of which are hereby attached, was previously filed on September

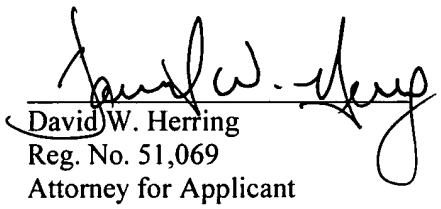
30, 2005. Applicants request that the file for the present application be updated accordingly with the new Correspondence Address associated with Customer Number 42292.

V. Conclusion

Claims 1 and 10 have been amended. New claims 40 and 41 have been added. No new matter has been introduced as a result of these amendments or as a result of the addition of these new claims. Support for the amendment to claim 1 can be found at least at page 10, lines 10 – 30 (discussing optical midpoint power levels in general and that such an optical midpoint power level may be calculated as an arithmetic mean). Claim 10 has been amended to correct a typographical error.

For the foregoing reasons, all pending claims are allowable over the cited art. Reconsideration and allowance of all claims is respectfully requested.

Respectfully submitted,



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